

**ABSTRACT OF THE DISCLOSURE**

An apparatus for measuring a gate oxide thickness comprises a first active area, first to fifth wordlines, first and second bar-shaped trench capacitors, and first and second 5 gate structures. The first active area with a width of at least  $2F$  is disposed on a substrate. The first to fifth wordline is disposed on the substrate in a first direction, with a first predetermined space between each two wordlines, and first ends of the first to fifth wordlines are electrically connected. 10 The first and second bar-shaped trench capacitors are disposed under the second and the fourth wordlines respectively with a second predetermined space between the first and second bar-shaped trench capacitors, and  $F$  is a minimum line width of the wordlines. The first and second gate structure are 15 respectively disposed between the first bar-shaped trench capacitor and the second wordline and between the second bar-shaped trench capacitor and the fourth wordline.